

REMARKS

Reconsideration of the present application is respectfully requested. It is submitted that the amendments submitted in this paper do not raise new issues or present new grounds for search. Accordingly, it is believed that entry of the amendments is appropriate at this time. Support for the amendment to claim 1, wherein the term "adsorption vessel" has been replaced with "column", can be found in the specification at page 5, line 29; page 9, line 17; page 10, line 31; page 12, line 9; page 13, line 16; and page 14, line 14. Support for the amendment to step (iv) of claim 1, in which desorption (or more aptly in the case of a column, elution) has been amended to now read that the adsorbent is treated "in the column with a solvent that is more hydrophobic than the hydrophilic phase to elute the essential oil from the adsorbent" can be found in the specification at page 10, lines 16-18.

Claims 1-7 and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over JP(H6-227994) ("JP '994") in view of Perry (Chemical Engineer's Handbook). The applicant submits that claim 1 distinguishes over the combined teachings of the references for two reasons. The first, as previously discussed, is the recycling of the hydrophilic phase back to the steam distillation vessel or extraction vessel from the column (the term now proposed herein). The applicants previously pointed out, at page 3 of their response of June 25, 2003, that the combined teachings of JP '994 and Perry fail to suggest that steam distillation process as taught by JP '994 can be modified to include the recycling of a hydrophilic phase back to the column, which the Examiner contends is taught by Perry. Regarding the Examiner's reply to the applicants' position that there is no motivation to combine JP '994 and Perry because the former is directed to steam distillation and the latter is directed to a conventional distillation, the Examiner is reminded that when an essential oil is removed from its plant (or other source), it is extracted, which unto itself

does not suggest extraction distillation. Thus, it is irrelevant whether the claims further recite "extracation using a stream distillation vessel or extracation in using an extracation vessel". The question is whether the requisite motivation exists to combine the teachings of the references relied upon by the Examiner. The applicants submit that the motivation does not exist to combine the teachings of JP '994, directed to a steam distillation process, which is not a distillation process in the traditional sense of the word, and the teachings of Perry, directed to recycling a steam in a conventional distillation process. Thus, the applicant's comments are on point – they are directed squarely to the combination of teachings that the Examiner is attempting to apply here. The question is, can they be combined because motivation to do so is present, or not? It is submitted that the Examiner has yet to meet his burden on this point.

The second point of distinction between the combined teachings of JP '994 and Perry, et al. relates to step (iv) of claim 1. In this step, the adsorbent is treated in the column with a solvent that is more hydrophobic than the hydrophilic phase to elute the essential oil from the adsorbent. In contrast, when the adsorption agent (10) of JP '994 has become charged with the essential oil (hinokitiol), the adsorption agent is forced out of the top of the column (1), into a discreet separating tank (9). This is more fully described in paragraphs [0028] and [0030]. There, in the adsorption agent separating tank (9) is the adsorption agent treated with a solvent to desorb the target compound and which is then concentration-distilled. According to paragraph [0028], the adsorption agent then requires re-activation in order to be re-used subsequently in the adsorption column. This is further described in the Embodiment 1 of JP '994, and in particular, in its paragraphs [0036] and [0037] on pages 22 and 23 of the previously provided translation.


Thus, the process defined in the above Claim 1 simplifies the desorption process steps, when compared to JP '994. As presently claimed, there is no need for an adsorption agent separating tank (9) as required by JP '994 nor for other arrangements required by JP '994, such as the porous plate (11), siphon tube (7) and discharge valve (14) of JP '994. Instead, the present inventors have solved the problem of isolating the essential oil by making use of the column not only to strip the essential oil from the hydrophilic phase, but also as a means for facilitating its later isolation by elution. Thus, the column is used to strip the essential oil from the hydrophilic phase, and later, is used as a means for recovering the essential oil from the adsorbent by elution. Additionally, the elution of the oil can be carried out as a chromatographic separation in the case that the essential oil is actually a mixture of two or more components. This avoids the need for a later separate purification step. There is no disclosure or hint in JP '994 of using the column other than simply to adsorb the oil on the column packing. It should be evident the Perry does not cure any of the aforementioned deficiencies with respect to process step (iv) of claim 1 as presented herein.

It is noted that the Examiner referred to Chromacek, as being relevant to the present Claim 8 in which the adsorption vessel is restricted to being a column and the desorption is effected as a chromatographic separation of the essential oil. However, Chromacek does not teach the use of an adsorbent-packed column in order to isolate essential oils. While it teaches at lines 6-12, column 4 that the macroporous cross-linked polymer powder which it provides can be used as an adsorbent for a fragrance. However, in the context of this reference, this is simply as a carrier, see line 26, column 15 – line 15, column 16. This reference does not teach that its powders can be used as a packing in a chromatography column in order to assist in the isolation

of an essential oil from a hydrophilic phase.

Wherefore, based upon the foregoing, it is submitted that the present application is in condition of allowance and a relatively early reply to this paper would be appreciated.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. Danyko', written over a circular stamp or mark.

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